#### **FINAL**



# PROJECT MANUAL FOR

# LITTLE BARBEE LAKE PUTNEY DITCH STREAMBANK STABILIZATION

# Submitted To:

BARBEE LAKES PROPERTY OWNERS ASSOCIATION Rural Route 1, Box 150 Warsaw, Indiana 46580

INTERNATIONAL SCIENCE & TECHNOLOGY, INC. 10501 Hague Road Fishers, Indiana 46038

August, 1991

# CONTRACT DOCUMENTS

Document	Description
1.	Advertisement for Bids
2.	Information for Bidders
3.	Bid
4.	Bid Bond
5.	Agreement
6.	Payment Bond
7.	Performance Bond
8.	Notice of Award
9.	Notice to Proceed
10.	Change Order
11.	General Conditions
12.	Special Conditions
13.	Contract Drawings

# ADVERTISEMENT FOR BIDS

#### INFORMATION FOR BIDDERS

BIDS will b	e received by
(herein called th	e "OWNER"), at
until	, 19, and then at said office publicly opened and reac
aloud.	
	ust be submitted in a sealed envelope, addressed toat
Each sealed env	elope containing a BID must be plainly marked on the outside as BID
envelope should number if applic forwarded by ma	bear on the outside the name of the BIDDER, his address, his license cable and the name of the project for which the BID is submitted. If all, the sealed envelope containing the BID must be enclosed in another sed to the OWNER at

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for five percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power

of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal

shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

Further, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity

clause set forth in the SUPPLEMENTAL GENERAL CONDITIONS.

The low BIDDER shall supply the names and addresses of major material SUP-PLIERS and SUBCONTRACTORS when requested to do so by the OWNER.

Inspection trips for prospective BIDDERS will leave from the office of the

				at		
	The	ENGINEER	is		His	address
s						

BIDDER agrees to perform all of the work described in the Contract Documents for the following lump sum costs. Note: BIDS are to include sales tax and all other applicable taxes and fees.

# PUTNEY DITCH STREAM STABILIZATION BID SCHEDULE

BID ITEM		CC	OST
Site Preparation:     a. Identify project both     b. Flag centerline of a c. Remove trees: 20     20 footer logs, and sectioned and stock	channel root wads, i 20 anchor logs		
2. Root wad installation	<b>:</b>		
a. install root wads, fo and anchor logs ac	coter logs, cording to plans.		
3. Installation of willows a. Apply fertilizer, lime specified rate b. Loosen seedbed to c. Stake locations of p d. Plant 150 willows (	estone at 3 in. Diants and border area		
4. Seed/mulch 6000 sq. a. Grass seed application b. Fertilizer application c. Mulch application d. Install erosion control	ntion		
ТО	TAL BID AMOUNT:		
Respectfully submitted:			
Signature	Address		License No. (if applicable)
Title	Date		EAL-if bid is by corporation
		Attest	<del></del>

#### BID BOND

KNOW ALL MEN BY TH	ESE PRESENTS, that we, the	e undersigned,
		as Principal, and
		as Surety, are hereby
held and firmly bound u	nto	as OWNER
in the penal sum of		
for the payment of which	, well and truly to be made	, we hereby jointly and severally
bind ourselves, successors	and assigns.	
Signed, this	day of	, 19
The Condition of the abov	ve obligation is such that wh	ereas the Principal has submitted
to		a certain BID,
attached hereto and hereb	y made a part hereof to ente	r into a contract in writing, for the
		···

### NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID.

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does herby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

···········	·	Principal	· · · · · · · · · · · · · · · · · · ·	_ (L.S.)
		Surety		
Bv:				

IMPORTANT-Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

#### **AGREEMENT**

THIS AGREEMENT, made thisday of, 19, by
and between, hereinafter called "OWNER"
and doing business as (an individual,) or (a
partnership,) or (a corporation) hereinafter called "CONTRACTOR".
WITNESSETH: That for and in consideration of the payments and agreements herein-
after mentioned:
1. The CONTRACTOR will commence and complete the construction of
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment,
labor and other services necessary for the construction and completion of the PROJECT
described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOC-
UMENTS within calendar days after the date of the NOTICE TO PRO-
CEED and will complete the same within calendar days unless the period
for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CON-
TRACT DOCUMENTS and comply with the terms therein for the sum of \$,
or as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
(A) Advertisement For BIDS
(B) Information For BIDDERS
(C) BID
(D) BID BOND

(E) Agreement

(F)	General Conditions
(G)	SUPPLEMENTAL GENERAL CONDITIONS
(H)	Payment BOND
(I)	Performance BOND
(J)	NOTICE OF AWARD
(K)	NOTICE TO PROCEED
(L)	CHANGE ORDER
(M)	DRAWINGS prepared by
(N)	SPECIFICATIONS prepared or issued by
	dated, 19
(O)	ADDENDA:
	No, dated, 19
	No, dated, 19 <sup>-</sup>
	No, dated
	No, dated, 19
	No, dated, 19
	No, dated, 19
6. The	OWNER will pay to the CONTRACTOR in the manner and at such times as
set forth	in the General Conditions such amounts as required by the CONTRACT
DOCUME	NTS.
7. Thi	s Agreement shall be binding upon all parties hereto and their respective
heirs, exec	cutors, administrators, successors, and assigns.
IN WITNI	ESS WHEREOF, the parties hereto have executed, or caused to be executed
by their o	duly authorized officials, this Agreement in () each of
which sha	(Number of Copies)

	OWNER:
	BY
	Name (Please Type )
(SEAL)	Title
ATTEST:	
Name (Please Type)	- -
Title	_
	CONTRACTOR:
	BY
	Name(Please Type)
	Address
(SEAL)	
ATTEST:	
Name (Please Type)	-

#### PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)			
(Address of Contractor)			
a (Corporation, Partnership or Individual)	, hereinafter	called	Principal,
(SS PS 2101), Tarifording of Morrison)			
and(Name of Surety)			
(Address of Surety)			
hereinafter called Surety, are held and firmly boun	id unto		
Ţ.			<u> </u>
(Name of Owner)			
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
(Address of Owner)	,	···	
hereinafter called OWNER, in the penal sum of	Dol	lars, \$(_	)
in lawful money of the United States, for the payn be made, we bind ourselves, successors, and assign these presents.	nent of which sum gns, jointly and se	well a	nd truly to firmly by
THE CONDITION OF THIS OBLIGATION is such	that whereas, the	Princir	al entered
into a certain contract with the OWNER, dated the		day of	ar omioroa
19, a copy of which is hereto attached and	made a part herec	of for th	e construc-
tion of:	,		

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WOLK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrume	ent is executed	incounterpar	ts, each
one of which shall be deemed an origina 19			
ATTEST:			
		Principal	
(SEAL)	Ву		(s)
		(Address)	
Witness as to Principal	-		
(Address)		Surety	
ATTEST:	Ву	Attorney-in-Fact	
Witness as to Surety	<del>-</del> .	(Address)	
(Address)			

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

#### PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

				(N	lame of Cont	ractor)					
				- (Ad	idress of Cor	ntractor				·	
a	rporation, Partne	rship, or Individu	al)			,	herei	nafter	called	Principal,	and
					(Name of Su	irety)					
	-			(/	Address of S	urety)					
hereinaft	er called	Surety,	are hel	ld and	firmly	bou	nd unt	0	· · · · · · · · · · · · · · · · · · ·		
					(Name of ow	vner)					
	····	<del></del>		()	Address of O	wner)					
hereinaft	er called	OWNER	R, in the	e penal	l sum o	of		· · · · · · · · · · · · · · · · · · ·			
	<del></del>							Do	llars, S	B(	)
in lawful be made, these pre	·we bin	of the Ui d oursel	nited S ves, su	tates, f ccessor	or the	pay: Lassi	ment c igns, jo	of which	ch sum and sev	well and tr erally, firm	uly to ly by
into a cer	tain con	tract witl	n the O	)WNER	l, dated	d the			da	Principal en y of the constru	
				A-							
		·····			<del></del>					······································	
				<u>.</u>							

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS

PROVIDED. FURTHER, that no final settlement between the OWNER and the CON-TRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_\_ counterparts, each one of which shall be deemed an original, this the \_\_\_\_ \_dav of \_ ATTEST: (Principal) Secretary (SEAL) (Witness as to Principal) (Address) ATTEST: (Surety) Secretary (SEAL) Witness as to Surety (Address)

NOTE: Date of BOND must not be prior to date of Contract.

If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

### NOTICE OF AWARD

To:			
<del> </del>			
	ion:		
The OWNER h WORK in response and Information for	to its Advertisement f	D submitted or Bids dated	by you for the above described
You are hereby	notified that your BI	D has been a	accepted for items in the amou
cates of insurance w  If you fail to est days from the date rights arising out of	CONTRACTOR'S Perf vithin ten (10) calendar xecute said Agreemen of this Notice, said ( the OWNER'S accept	ormance BO r days from th nt and to furn OWNER will tance of vour	o execute the Agreement and fu ND, Payment BOND and certi- ne date of this Notice to you. nish said BONDS within ten (1 be entitled to consider all your BID as abandoned and as a fo ed to such other rights as may be
	ed to return an ackno	wledged copy	y of this NOTICE OF AWARD
Dated this	day of	, 19	-
			Owner
		Bv	Owner
		•	
	ACCEPTANC		
Receipt of			hereby acknowledged
	the above NOTICE Of		mereby acknowledged
his the	day (	of	
Piel			

# NOTICE TO PROCEED

To:	Date:
	Project:
dated, 19, on or bare to complete the WORK within	consecutive calendar days thereafter.
The date of completion of all WORK is there.	fore, 19
	Owner
	Ву
•	Title
ACCEPTANCE OF NOTICE	
Receipt of the above NOTICE TO PRO-	
CEED is hereby acknowledged by	
this theday	
of, 19	
Ву	

### CHANGE ORDER

Or	der No
Da	te:
Ag	reement Date:
NAME OF PROJECT:	
OWNER:	
CONTRACTOR:	
The following changes are hereby made to the CO	ONTRACT DOCUMENTS:
Justification:	•
Change to CONTRACT PRICE:	
Original CONTRACT PRICE \$	
Current CONTRACT PRICE adjusted by previous	us CHANGE ORDER \$
The CONTRACT PRICE due to this CHANGE C	RDER will be (increased) (decreased)
by: \$	
The new CONTRACT PRICE including this CHA	NGE ORDER will be \$
Change to CONTRACT TIME:	
The CONTRACT TIME will be (increased) (decre	
The date for completion of all work will be	(Date).
Approvals Required: To be effective this Order must be approved by scope or objective of the PROJECT, or as may of MENTAL GENERAL CONDITIONS.	the Federal agency if it changes the therwise be required by the SUPPLE-
Requested by:	
Recommended by:	
Ordered by:	
Accepted by:	
Federal Agency Approval (where applicable)	

#### **GENERAL CONDITIONS**

- 1. Definitions
- 2. Additional Instructions and Detail Drawings
- 3. Schedules, Reports and Records
- 4. Drawings and Specifications
- 5. Shop Drawings
- 6. Materials, Services and Facilities
- 7. Inspection and Testing
- 8. Substitutions
- 9. Patents
- 10. Surveys, Permits, Regulations
- 11. Protection of Work, Property, Persons
- 12. Supervision by Contractor
- 13. Changes in the Work
- 14. Changes in Contract Price
- 15. Time for Completion and Liquidated Damages
- 16. Correction of Work

#### . DEFINITIONS

- 1.1 Wherever used in the CONTRACT DOCU-MENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:
- 1.2 ADDENDA Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.
- 1.3 BID-The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.
- 1.4 BIDDER-Any person, firm or corporation submitting a BID for the WORK.
- 1.5 BONDS-Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.
- 1.6 CHANGE ORDER A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.
- 1.7 CONTRACT DOCUMENTS—The contract. including Advertisement For Bids, Information For Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.
- 1.8 CONTRACT PRICE—The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.
- 1.9 CONTRACT TIME-The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.
- 1.10 CONTRACTOR The person, firm or corporation with whom the OWNER has executed the Agreement.
- 1.11 DRAWINGS—The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

- 17. Subsurface Conditions
- 18. Suspension of Work, Termination and Delay
- 19. Payments to Contractor
- 20. Acceptance of Final Payment as Release
- 21. Insurance
- 22. Contract Security
- 23. Assignments
- 24. Indemnification
- 25. Separate Contracts
- 26. Subcontracting
- 27. Engineer's Authority
- 28. Land and Rights-of-Way
- 29. Guaranty
- 30. Arbitration
- 31. Taxes
- 1.12 ENGINEER The person, firm or corporation named as such in the CONTRACT DOCUMENTS.
- 1.13 FIELD ORDER-A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.
- 1.14 NOTICE OF AWARD—The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.
- 1.15 NOTICE TO PROCEED Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.
- 1.16 OWNER-A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.
- 1.17 PROJECT—The undertaking to be performed as provided in the CONTRACT DOCUMENTS.
- 1.18 RESIDENT PROJECT REPRESENTATIVE The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.
- 1.19 SHOP DRAWINGS-All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.
- 1.20 SPECIFICATIONS A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- 1.21 SUBCONTRACTOR—An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.
- 1.22 · SUBSTANTIAL COMPLETION—That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.
- 1.23 SUPPLEMENTAL GENERAL CONDITIONS -

Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS. or such requirements that may be imposed by applicable state laws.

- 1.24 SUPPLIER Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.
- 1.25 WORK-All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.
- 1.26 WRITTEN NOTICE—Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

# 2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

- 2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.
- 2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCU-MENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

#### 3. SCHEDULES, REPORTS AND RECORDS

- 3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.
- 3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:
- 3.2.1. The dates at which special detail drawings will be required; and
- 3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.
- 3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

#### 4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICA-TIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

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- 4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions. and detailed DRAWINGS shall govern over general DRAWINGS.
- 4.3 Any discrepancies found between the DRAW-INGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

#### 5. SHOP DRAWINGS

- 5.1 The CONTRACTOR shall provide SHOP DRAW-INGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.
- 5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.
- 5.3 Portions of the WORK requiring a SHOP DRAW-ING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

### 6. MATERIALS, SERVICES AND FACILITIES

- 6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.
- 6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.
- 6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
- 6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the CONTRAC-TOR and approved by the ENGINEER.
- 6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the

CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

#### 7. INSPECTION AND TESTING

- 7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CON-TRACT DOCUMENTS.
- 7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.
- 7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.
- 7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.
- 7.5 Inspections, tests or approvals by the engineer or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.
- 7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.
- 7.7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.
- If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective. the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CON-TRACTOR will be allowed an increase in the CON-TRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering. exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

#### 8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equip-

ment is identified on the DRAWINGS or SPECIFICA-TIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROI-ECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE of CONTRACT TIME.

#### 9. PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

#### 10. SURVEYS, PERMITS, REGULATIONS

- 10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.
- 10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.
- 10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR

observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

# 11. PROTECTION OF WORK, PROPERTY AND PERSONS

- 11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- 11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCON-TRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.
- 11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

#### SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

#### CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises,

order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

#### 14. CHANGES IN CONTRACT PRICE

- 14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:
  - (a) Unit prices previously approved.
  - (b) An agreed lump sum.
- (c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen [15] percent of the actual cost of the WORK to cover the cost of general overhead and profit.

# 15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- 15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.
- 15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.
- 15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.
- 15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.
  - 15.4.1 To any preference, priority or allocation

order duly issued by the OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in para-

graphs 15.4.1 and 15.4.2 of this article.

#### 16. - CORRECTION OF WORK

- 16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS. whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and reseacute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.
- 16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten [10] days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

#### 17. SUBSURFACE CONDITIONS

- 17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:
- 17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS: or
- 17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.
- 17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

#### SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR. by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR

- will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.
- 18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances. rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CON-TRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRAC-TOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.
- 18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.
- 18.4 After ten [10] days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the Contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.
- 18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK exe-

cuted and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK. CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

#### 19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CON-TRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER's title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWN-ER will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the CON-TRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCU-MENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and

equipment which are suitably stored either at or near the site.

- 19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.
- 19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.
- 19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demands of SUB-CONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWN-ER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CON-TRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

# 20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the Performance BOND and Payment BONDS.

#### 21. INSURANCE

- 21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:
- 21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;
- 21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;
- 21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees:
- 21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained [1] by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or [2] by any other person; and
- 21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.
- 21.2 Certificates of Insurance acceptable to the OWN-ER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen [15] days prior WRITTEN NOTICE has been given to the OWN-ER.
- 21.3 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified;
- 21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any

operations under the CONTRACT DOCUMENTS. whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him, Insurance shall be written with a limit of liability of not less than \$500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$200,000 aggregate for any such damage sustained by two or more persons in any one accident.

- 21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surely from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.
- 21.4 The CONTRACTOR shall procure and maintain. at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed. Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is subjet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRAC-TOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.
- 21.5 The CONTRACTOR shall secure, if applicable. "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

#### 22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten [10] days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by

the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS. CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

#### 23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.

#### 24. INDEMNIFICATION

- 24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury, to ex destriction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.
- 24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.
- 24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

#### 25. SEPARATE CONTRACTS

25.1 The OWNER reserves the right to let other con-

tracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

- 25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts for the OWNER, if he is performing the additional WORK himself], reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.
- 25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entities him to an extension of the CONTRACT TIME, he may make a claim therefor as provided in Sections 14 and 15.

#### 26. SUBCONTRACTING

- 26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.
- 26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.
- 26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUB-CONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- 26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.
- 26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

#### 27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The

ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

- 27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.
- 27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.
- 27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

#### 28. LAND AND RIGHTS-OF-WAY

- 28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.
- 28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.
- 28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

#### 29. GUARANTY

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL. COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be

necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

#### 30. ARBITRATION

- 30.1 All claims, disputes and other matters in question arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 20, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.
- 30.2. Notice of the demand for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the ENGINEER. Demand for arbitration shall in no event be made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.
- 30.3. The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

#### 31. TAXES

31.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

#### **DOCUMENT 12: SPECIAL CONDITIONS**

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#### SPECIAL CONDITIONS

#### SECTION 1: INTENT, SCOPE, AND GENERAL REQUIREMENTS

#### 1.1 GENERAL INTENT

It is the declared intention of the Barbee Lakes Property Owners Association (BLPOA) to construct streambank protection measures along a section of Putney Ditch, approximately 500 feet downstream of McKenna Road, near Little Barbee Lake, Koskiusco County, Indiana. The purpose of this project will be to protect the bank from further erosion in this area, and to reduce the quantity of sediment reaching Little Barbee Lake from the Putney Ditch channel.

The Contractor shall accomplish all work, including such additional, extra and incidental work that may be considered necessary by the Administrator to complete the project in a satisfactory and acceptable manner, and shall furnish all plant equipment, tools, materials, labor and incidentals necessary to carry on the project to satisfactory completion within the time period specified and in strict accordance with the Contract Drawings and Specifications.

#### 1.2 SCOPE OF WORK

Work under this Contract includes: the preparation of the specified area along the Putney Ditch stream channel for stabilization using native materials as called for in the Contract Documents, placement of the materials into the bank, backfilling the stabilized area, seeding and mulching of the backfilled area, and planting the overbank area with willows or other woody shrubs.

#### 1.3 TIME FOR COMPLETION

The Contractor will be required to commence work under this Contract within ten (10) calendar days after the date of receipt by him of the Notice to Proceed; to follow through and prosecute said work diligently, and to substantially complete construction within forty-five (45) calendar days after the Notice to Proceed; at which point in time the project will be in finished condition, as specified, and all temporary storage facilities, equipment, tools, and surplus and waste materials will have been removed from the work site.

#### 1.4 BASIS OF PAYMENT

THIS IS A LUMP SUM CONTRACT IN WHICH NO EXTRAS ARE POSSIBLE. Should the contractor be required to perform work over and above that required by Contract Documents, he will be paid an extra, or shall credit the BLPOA as the case may be, on the basis of unit prices quoted in the bid proposal. Prices quoted shall be the same for "extra" work and for "credit" work and shall be the sum

total compensation payable or creditable for such items of work, including all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for in the Specifications. Changes in payments shall be processed in accordance with the General Conditions. The lump sum bid given by the bidder in his proposal shall be the only recompense for completing the construction of the dredged material placement site and the dredging of the Putney Ditch channel and mouth.

The stream channel characteristics shown in the Contract Drawings are made available as information held by the BLPOA, but the BLPOA assumes no responsibility that this information was complete or correct when obtained. Before submitting his bid, the bidder shall determine all information necessary to him in calculating risks, the degree of difficulty of the work, the quantities of materials, and a firm lump sum contract bid price. It is emphasized that the bidder must anticipate changes in the construction site not only before the start of construction, but during construction as well.

#### 1.5 DEFINITIONS

The following definitions clarify, supplement, and/or amend those provided in the General Conditions.

ADMINISTRATOR - Shall mean the Administration of this project by the BLPOA or their duly appointed representative or agent(s) acting severally within the scope of the particular duties assigned to them. The Administrator will provide general administration of the Contract options, including performance of the functions hereinafter described; he will be the representative of the BLPOA during construction and until final payment; he will review shop drawings and samples and prepare change orders. The Administrator will be in the first instance the interpreter of the requirements of the Contract Documents, and will have authority to reject work which does not conform to the Contract Documents. The Administrator shall at all times have access to the work wherever it is in preparation or progress.

AS DIRECTED or REQUIRED - Whenever in the specifications, or accompanying drawings the words DIRECTED, REQUIRED, PERMITTED, ORDERED, DESIGNATED, PRESCRIBED, or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Administrator is intended. Similarly, the words APPROVED, SATISFACTORY, or words of like import shall mean approved by or acceptable or satisfactory to the Administrator.

BARBEE LAKES PROPERTY OWNERS ASSOCIATION, BLPOA - shall mean the party to which the contractor and Administrator are responsible to. The BLPOA will have the authority to terminate any or all work done in connection with the dredging, construction, or any activity conducted that they deem due to either dredging or construction activities. The BLPOA will be the sole determinant as to whether the work has been successfully completed and whether final payment can be made to the Contractor.

CHANGE ORDER - The authorized Representative of the BLPOA without invalidating the Contract, may order changes in the work within the general scope of the Contract, consisting of additions, deletions or other revisions, with the Contract sum and the Contract time being adjusted accordingly. All such changes in the work shall be authorized by a change order, and shall be executed under the applicable conditions of the Contract. A change order is a written order to the Contractor signed by the said Representative, issued after the execution of the Contract, authorizing a change in the work or an adjustment in the Contract sum or the Contract sum or the Contract signed by the Contract of the agrees to the adjustment in the Contract sum or the Contract time. The Contract sum and the Contract time may be changed only by a change order.

CONTRACT - The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the bidding documents. The Contract may be amended or modified only by a modification.

CONTRACT DOCUMENTS - These Specifications and the Contract Drawings and addenda thereto, the bid proposal, and the Contract Agreement, and the bonds associated therewith, change orders, the Notice to Proceed, and all other papers attached or bound with the above documents or referred to therein comprise the Contract Documents.

CONTRACTOR - Refers to the Party of the Second Part (or his agents or subcontractors) who is (are) responsible for accomplishing all work of the project, as further designated elsewhere in the Specifications. The Contractor shall supervise and direct the work using his best skill and attention; he shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work. He shall employ a competent superintendent and necessary assistants who shall be in attendance at the job site during the progress of all options of the work. The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person, or anyone not skilled in the task assigned to him. He shall be responsible to the BLPOA for the acts and commissions of all his employees and all subcontractors, their agents and employees, and all other persons performing any of the work under a subcontract with the Contractor.

DESIGN DRAWINGS. Reference to Design Drawings is synonymous with "drawings", "plans", and "engineering plans". In all cases, reference is made to the Contract Drawings, Sheets 1 through 4, entitled, "Putney Ditch Stabilization/Restoration Sketches".

ENGINEER - The Engineer shall mean the duly authorized representative of the BLPOA.

INSPECTOR - The Inspector will be the duly authorized representative of the BLPOA with specific responsibilities for ensuring successful completion of each and all aspects of the work. The Inspector and

the Engineer may or may not be the same individual.

MODIFICATION - A written amendment to the Contract signed by both parties, issued after the execution of the Contract authorizing, a change in the work not involving an adjustment in the Contract sum or extension of the Contract time.

WORK or PROJECT - The term "Work" or "Project" includes all labor necessary to produce the overall construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such construction.

#### 1.6 SUBCONTRACTING OF CONTRACT

If the Contractor intends to subcontract portions of the work, this intent shall be indicated as provided for in the Bid Documents. The Contractor shall not modify and/or add additional subcontracting without written approval by the BLPOA. No subcontracting of the work shall release the Contractor of his liability under the contract and bond.

The Contractor shall provide and maintain the proper plant, clerical support, and field personnel for proper management and coordination of subcontractors, and for providing and maintaining direct communication between the Contractor and the Owner. The Engineer shall not be required to deal directly with Subcontractors of the Contractor. Failure of the contractor to provide proper and qualified field management services will be cause for termination of the Contract.

#### 1.7 SUBMISSION OF BIDS

It will be the responsibility of the Contractor to fully acquaint himself with the physical project site(s) and the nature of the work to be performed. The submission of a bid will represent a thorough understanding of all requirements of the Contract Documents by the Contractor, and will signify that the Contractor is in agreement with all of the terms and intent of the Contract Documents. Questions concerning conflicts within the documents, or technical questions, will be assumed to have been resolved prior to submittal of a bid. The Owner will not recognize claims for unanticipated costs resulting from a lack of preparedness, familiarity with site-specific requirements, or a lack of understanding of the Contract Documents.

#### 1.8 AWARD OF CONTRACT

Award of a contract will be made to the responsive bidder based on the total bid amount and ability to complete the work to the satisfaction of the Owner. The Owner reserves the right to reject any and all bids if it is deemed to be in the best interest of the Owner.

#### 1.9 PRE-CONSTRUCTION CONFERENCE

Prior to signing the Contract Documents and prior to beginning construction, a pre-construction conference will be held. Representatives of the Contractor, including any Subcontractors, the Owner, the Engineer, and other interested agencies and parties will be present to discuss the time and sequence of construction, methods and plans of operation, payment, and any other relevant issues. The Contractor will be informed of the time and location of the meeting by the Owner. At the pre-construction conference, a schedule of construction will be submitted by the Contractor for approval by the Owner. The schedule will show the time required for each element of the work, and the total time required to complete the project.

#### SECTION 2: CONSTRUCTION REQUIREMENTS

#### 2.1 ROOT WAD PLACEMENT

#### 2.1.1 Scope

Describes the sequence of steps necessary for placement of root wad revetments. All work should proceed from upstream to downstream.

#### 2.2.3 Materials

The stabilization methods outlined below employ the use of native materials, primarily root wads, to armor and stabilize the streambank. Root wads are the below ground portion of trees. It is anticipated that the Contractor will remove approximately 20 mature trees in the immediate vicinity of the proposed project. The trees will be flagged for removal by the BLPOA prior to initiation of the project.

#### 2.2.4 Construction Methods

- Cut trenches for footer logs at least one-half the diameter of the footer log below the invert of the proposed channel.
- Place footer logs in trench such that each upstream log is shingled over its downstream neighbor, such that the logs are interlocked (see detail).
- Cut the trench for the upstream-most root wad log and place the log on top of the footer log so that the root fan is angled at 30 to 45 degrees to the center line of the channel (see detail).
- 4. Cut the trench for the next root wad log so that the space between the two root wad fans will be no more than one half fan diameter and the angle of the root fan is 30 to 45 degrees off of the center line of the channel.
- Place the cut off log on top of the two root wad logs so that it is wedged close to the fan
  of the downstream root wad log and protrudes beyond the base of the bole (see detail).
- Repeat steps 5 and 6 moving in a downstream direction until the meander bend is complete.
- Fill the area behind the root wad revetment and the trench in which the root wad is
  placed, using any large rocks available to provide additional anchoring over the cut off

logs.

#### 2.4.5 Construction Notes

- Footer logs should be buried below the invert of the stream by one half their diameter to compensate for expected scour.
- Root wad placement should be such that the angle of the root fan is between 30 and 45 degrees to the centerline of the channel. This places the root fan at approximately right angles to velocity vectors in a meander bend.
- 3. Cut-off logs should be placed over two adjacent root wad logs before backfilling. Backfilled materials should be free-draining, coarse materials, and should not be compacted. Sufficient backfill materials will probably be available from the adjacent point bar in the stream channel.
- Care should be taken to ensure that holes are plugged with rock or excess logs to prevent sloughing of backfill into stream channel.

#### 2.3 SEEDING/MULCHING

The filled area on top of and behind the bank will be treated as a critical area and reseeded using a R (rural) seed mixture applied at a rate of 110 pounds/acre. The mixture will have the following composition (on a per acre basis):

- 50 pounds Reed canary grass
- 35 pounds perennial rye
- 25 pounds Kentucky bluegrass.

The seed mixture shall contain none of the following noxious weeds listed in the Acts of the General Assembly of the State of Indiana: Canada Thistle, Field Bindweed, Johnson Grass, Perennial Peppergrass, Perennial Sowthistle, Quack Grass, Russian Knapweed, or Wild Garlic. Seed will be purchased from sources of supply that have been sampled, tested, and reported by the State Seed Commission, Purdue University, and found to be satisfactory.

Prior to application of the seed mixture, the seed bed will be loosened to a depth of 3 inches. Fertilizer and agricultural limestone will be mixed and added to the upper two (2) inches of soil at a rate of 800 pounds per acre fertilizer and 1/2 ton per acre limestone.

Within 24 hours of seeding the vegetated area, mulch (straw; chaff; clover, timothy, alfalfa, or

soy bean hay) will be applied at a rate of two (2) tons per acre. The mulch must be dry; such condition will be determined by the Inspector prior to placing the mulch. In addition, it cannot contain any noxious weeds. Following spreading of the mulch, the Contractor must anchor the mulch by application of erosion control netting, or a tackifier meeting ASTM D-977 specifications.

#### 2.4 PLANTING WILLOWS

The backfilled area will be planted with bare rooted willow seedlings. The contractor will be responsible for all costs associated with ordering, shipment, and planting of the seedlings. Pussy willow, Salix discolor, is the recommended variety. If this species is not available, another shrub-like willow species can be substituted. The substituted species must be approved by the BLPOA prior to ordering and planting. Pussy willow seedlings are available from the Warren County nursery, McMinnville, TN; phone: (615) 668-8941. The seedlings should be 24-36 inches in height.

#### 2.4.1 Care and Handling of the Plants

If the outside air temperature exceeds 35 F when the plants are delivered, the plants shall be planted immediately or placed in outside storage. If they are stored outside, the roots shall first be puddled in a solution of backfill and water and wrapped with moist straw, peat moss, or corn cobs. Plants delivered in boxes, wrapped bundles, or in other closed containers and which are stored inside may remain in the container for 48 hours from the time of delivery.

If the outside air temperature is less than 35 F, the plants shall be placed in inside storage immediately. Inside storage procedures shall be in accordance with the above requirements. Plants may be transferred to outside storage when the outside air temperature exceeds 35 F.

#### 2.4.2 Preparation for Planting

Prior to planting, the area to be planted will be re-graded to a minimum slope of 3:1 horizontal to vertical in accordance with the plans. The excavated material will be removed from the site and disposed of at an upland location at no additional cost to the Barbee Lake Property Owners Association. The contractor will assume all liability for disposal of the excavated material.

#### 2.4.3 Excavation for Plant Holes

The Contractor will stake the location of holes for each plant, as well as the border of the area to be planted. The plant holes will be cylindrical in shape with the side approximately vertical. Spacing between the holes shall be as directed above. Material within the area to be planted that is unsuitable for the growth of vegetation, such as rocks and boulders, shall be removed and disposed of as directed by the Inspector. If the plants have not been planted within 10 days after excavation of the holes, the holes

shall be refilled and re-excavated at the time of planting. No additional payment will be made for this operation.

#### 2.4.4 Planting

Each seedling will be planted to a depth sufficient to completely cover the roots (approximately 3-5 inches). The soil should be tamped around the plant to hold it perpendicular. Water should be used to settle the soil and to eliminate air pockets around the roots. The top layer of soil immediately surrounding the plant should be loose and untamped. Spacing between plants should be 2 to 3 feet.

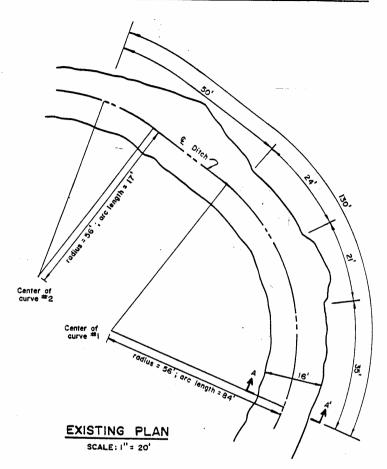
Temperature inside the storage building shall be maintained between 35 F and 55 F. Plants shall not remain in storage, either inside or outside, for more than 7 days unless conditions are unfavorable for planting.

If, after staking or excavating the plant holes, it becomes apparent that parts of the area to be planted are unsuitable for planting due to groundwater accumulation, flooding, or poor soil conditions, the plant holes shall be relocated as directed by the Inspector. Such relocation shall be done with no additional payment.

# **DOCUMENT 13: CONTRACT DRAWINGS**

Number	Description
1.	Existing Plan
2.	Proposed Plan
3.	Proposed Plan With Root Wad Protection
4.	Putney Ditch Root Wad Bank Stabilization

# PUTNEY DITCH STABILIZATION/RESTORATION SKETCHES

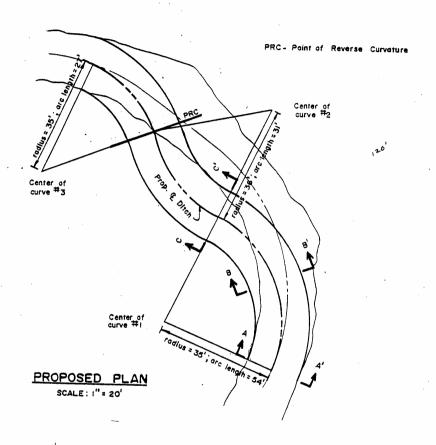


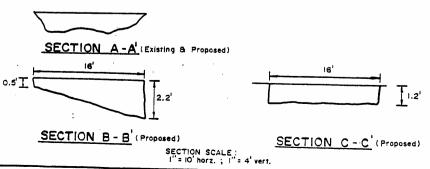


SECTION A-A'

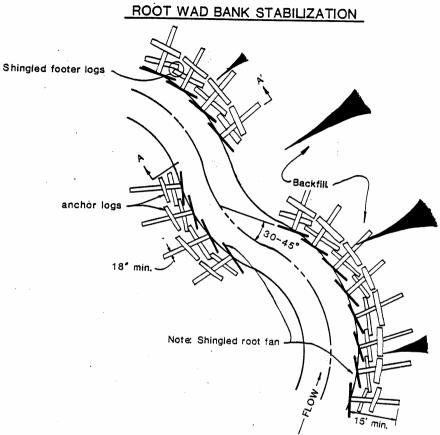
1" = 10' Horz. 1" = 4' Vert.

# PUTNEY DITCH STABILIZATION/RESTORATION SKETCHES





# PUTNEY DITCH



# PROPOSED PLAN WITH ROOT WAD PROTECTION

SCALE: 1"=20"

